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SOUTH AUSTRALIA

ANNUAL REPORT

OF

The Central Board of Health

FOR THE

YEAR ENDED 31st DECEMBER, 1938

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THE PUBLIC HEALTH.

Annual Report of the Central Board of Health to the Minister of Health (Hon. Sir George Ritchie, K.C.M.G., M.L.C.)

Sir—We have the honour to submit the annual report for the year ended 31st December, 1938, on the work of the Central Board of Health of South Australia.

PART I.

GENERAL VIEW OF ACTIVITIES.

Personnel of the Board.—The personnel of the Board during the year was :—

Chairman—
Albert Ray Southwood, M.D.

Members appointed by the Governor—
Edward Angas Johnson, M.D.
John Burton Cleland, M.D.

Member elected by Metropolitan Local Boards—
Harry Sumner Hatwell, J.P.

Member elected by Country Local Boards—
Frank Charles Lloyd, J.P.

Professor Cleland, who went abroad on a study tour in November, 1937, resumed his duties on the Board in June, 1938. During his stay in England, Professor Cleland made investigations into various aspects of public health work, and especially studied laboratory procedures conducted by the Ministry of Health and by the Public Health Department of the London County Council. Professor Cleland was greatly impressed with the enthusiasm the authorities in England were devoting to the health campaign. The experience gained by Professor Cleland from his tour will be extremely valuable to the Board.

Board Meetings.—Twenty-six meetings of the Board were held during the year, and the main subjects dealt with are reviewed in appropriate portions of this report.

Staff of the Department.—The members of the Departmental Staff have devoted themselves assiduously to their duties. The poliomyelitis epidemic and the introduction of new legislation regarding dangerous drugs and poisons cast a large amount of extra work on the staff. The year has been a very arduous one, and the staff has carried out the heavy work expeditiously and thoroughly.

Scope of Work.—The scope of the department's work is very wide, as this report shows, and the fact that the small staff of the department is able to cope so efficiently with the work is a matter of gratification to the Board.

The Board is the supervising authority for health work throughout the State ; the Local Boards of Health, constituted by the municipal and district councils, are assisted by the Board's officers in the conduct of their administrative responsibilities. The outdoor staff of the Board is engaged largely in visiting Local Board areas throughout the State, and in investigating the work being done by the Local Boards.

The following list indicates some of the matters attended to by inspectors of the Central Board staff during the year under review :—Slaughterhouses, 127 ; butchers' shops, 124 ; bakehouses, 112 ; hotels, 132 ; business premises, 1,526 ; private premises, 2,303 ; septic tanks, 629 ; plans of septic tanks examined, 617 ; milk vendors' premises, 239 ; dealers in poisons, 662 ; schools, halls, institutes, etc., 408 ; food premises, 1,295 ; exhumations and re-burials attended, 14 ; workmen's camps, reserves, etc., 72 ; piggeries, 9.

"*Public Health Notes*".—The quarterly bulletin of the department is issued free to all members and officers of Local Boards throughout the State, as well as to a large number of medical men and other persons interested in public health work but not officially engaged in it. The Board has reason to believe that the bulletin serves a very useful function.

Much of the success of the bulletin is derived from the excellent support received from those who have generously responded to requests for articles for publication :—Mr. W. J. Adey, C.M.G. (Director of Education), Dr. Felix Arden (Medical Superintendent of the Adelaide Children's Hospital), Dr. Frank H. Beare (Visiting Physician, Infectious Diseases Hospital), Miss Doris A. Beeston (Secretary, Kindergarten Union of South Australia), Professor J. B. Cleland, Dr. J. M. Dwyer (Officer of Health for the town of Hindmarsh), Dr. A. H. Finger (Medical Superintendent, Infectious Diseases Hospital), Mr. H. J. N. Hodgson, M.C.E. (Assistant Engineer for Sewerage) ; Mr. C. E. Rosevear, M.R.San.I. ; Mr. A. H. Scarfe, A.A.C.I. (Department of Chemistry) ; Dr. J. G. Sleeman (Director of Tuberculosis Services), Dr. Harry M. Southwood, Dr. T. G. Wilson (Lecturer in Obstetrics, University of Adelaide) ; Mr. H. Womersley, F.R.E.S., A.L.S. (Entomologist to the South Australian Museum).

The Board is very grateful to the bulletin's contributors. The wide variety of subjects, each treated in semi-popular fashion by the appropriate expert, gives the little " notes " its greatest merit and interest.

Legislation.—Additional legislation, consisting mainly of regulations of a detailed nature, has helped to make the year a busy one.

(1) On 12th May, 1938, the regulations introduced on 2nd December, 1937, relating to the restriction on travel of children under 16 years of age from Victoria to South Australia, on account of infantile paralysis were revoked. This action was taken as a result of the subsidence of the outbreak of the disease.

(2) Undulant fever was declared by proclamation to be an infectious disease, within the meaning of The Health Act, on 8th September, 1938. This proclamation was the outcome of the opinion expressed by the National Health and Medical Research Council that the disease should be made notifiable in an endeavour to correlate accurately the incidence of undulant fever in Australia.

(3) New regulations relating to infectious diseases and tuberculosis constitute a great advance. Early legislation relating to infectious diseases and pulmonary tuberculosis was mainly of a " remedial " nature. In 1935, the Health Act was amended, and the making of regulations of a " preventive " nature was provided for. Regulations made on the 3rd November, 1938, indicate procedures for preventing the spread of or for limiting or eradicating any infectious disease or tuberculosis, and, in particular, give power to control " contacts " and " carriers " over whom previously there had been practically no control.

(4) On 26th May, 1938, variations of the Food and Drugs Regulations were made in respect to the following :—Delivery of meat and bread, keeping or storage of oysters, ices or other similar frozen food, flour-bleaching and improvers, malt extract and cod liver oil, sausage skins, chilled and preserved eggs, packages for dried milk, dried skim milk, and dried separated milk, fruit-flavoured jelly crystals and jelly crystals, drugs, declaration of certain drugs, liquid paraffin for medicinal purposes, permitted colouring matter and labelling of spirits.

(5) On 14th July, 1938, variations were also made with respect to the sanctioning of the use of bread carts and receptacles, rennet, chocolate for diabetic persons, and the declaration of certain drugs.

(6) The Poisons Regulations, 1938, which came into force on 1st July, are reviewed in Part IV. of this report.

National Health and Medical Research Council.—The Chairman of the Central Board is the Government representative on the National Health and Medical Research Council. Two meetings of the Council were held during 1938, the first at Brisbane in May, the second at Canberra in November.

The Council performs a useful function in assisting in the co-ordination of public health work throughout the Commonwealth. As explained in the Board's report for 1937, the work of the Council in promoting medical and dental research in Australia is a recent and most important development.

In this State the Institute of Medical and Veterinary Science will be enabled through the increased facilities available in its new building to take a very active part in research work. The Institute has a highly qualified and enthusiastic staff of research workers, and, given adequate support, it will be in a position to fulfil its important functions with the greatest credit. A grant from the National Health and Medical Research Council was made available to the Institute for work on infantile paralysis. At the November meeting of the Council, a grant was made for research into " pink disease " (*erythroedema*), to be conducted by members of the staff of the Adelaide Children's Hospital, in co-operation with the Institute.

A grant was also made by the Council for special anatomical studies into certain features of infantile paralysis, the work to be done under the direction of the Professor of Anatomy at the University. Another grant was made for research on certain problems in diseases of the eye, and this work is being done in the Department of Physiology at the University.

The research into the epidemiological aspects of rheumatic infections in South Australia has proceeded throughout the year. The Research Officer (Dr. C. B. Sangster) is now engaged in completing the work and collating the data. The report will be presented to the National Health and Medical Research Council in September, 1939. The assistance of the medical section of the Education Department in this work is greatly appreciated by the Central Board.

An investigation is being conducted under the aegis of the Council into the incidence of tuberculosis in young women. The matter is discussed in Part VII. of this report.

Poliomyelitis.—In common with most countries, South Australia has been subject to sporadic outbreaks of this disease, but severe epidemics have been rare. In Victoria in June, 1937, a very extensive epidemic began, and a similar, though less widespread epidemic, began in South Australia in November, 1937. The epidemic reached its height at the latter end of December, 1937, and in January, 1938. Since May, 1938, only occasional cases have been reported. The epidemic is more fully reviewed in section VI. of this report.

Work of Local Boards.—Inspections made by officers of the Central Board show that most Local Boards attend to their duties fairly well. Some Local Boards, however, are not fully alive to their powers and responsibilities. Slaughterhouses, dairy premises, bakehouses, and all other food premises need frequent and regular visits by Local Board inspectors. The proper disposal of nightsoil and refuse, and the general cleanliness of private premises are also matters requiring proper care and attention.

Generally speaking, Local Boards are taking greater interest in the health work of their areas. The Central Board has tried to impress on Local Board members the desirability of each considering himself responsible to some extent for the health conditions of his particular ward or district. If this individual responsibility is shouldered, the work of Local Boards will be forwarded tremendously.

In health work, as in all fields of human endeavour, the individual man counts so much. By keeping his home and surroundings clean and sweet and tidy, and by observing the commonsense rules for personal health, a man best serves himself, his family, and the community. For official health organizations, active thought and steady progress must be maintained in the coming year. In the fight for sound national health, the proper methods of attack are well enough known, but effort and money are needed to accomplish results.

PART II.

VITAL STATISTICS.

It is not proposed here to present extensive statistical records, for the detailed reports issued from time to time by the Government Statist embody all the important tables which relate to the life and health of the community. A report of a health department such as ours would be incomplete, however, without some consideration being given to the appropriate statistical information. Vital statistics bear so intimately on the work of a health department, for they indicate not only the extent and nature of the health problems the community has to contend with, but also the degree of success being achieved in attacking ill-health. The figures here reproduced have been made available through the courtesy of the Government Statist (Mr. A. W. Bowden, A.I.A.).

Population of the State.—The population of the State on the 30th June, 1938, was 592,292. On 30th June, 1937, the population was 588,678. Although the population of the State continues to increase year by year, the rate of increase has slowed considerably in the last decade.

Births and Deaths.—Table I. shows the number of births and deaths, and the rate per 1,000 of mean population. It also shows the number of infantile deaths (under the age of one year) and the infantile death-rate per 1,000 births.

TABLE I.

Births and Deaths in South Australia.

Period.	Births.		Deaths.			
			Total.		Infants.	
	No.	Rate.	No.	Rate.	No.	Rate.
Mean—						
1920-24	11,857	23·43	4,901	9·68	693	58·45
1925-29	11,301	20·16	5,034	8·98	526	46·54
1930-34	8,989	15·54	5,001	8·65	342	38·05
Year—						
1934	8,459	14·50	5,403	9·26	301	35·58
1935	8,270	14·14	5,163	8·83	289	34·95
1936	8,911	15·17	5,464	9·30	277	31·09
1937	8,985	15·25	5,247	8·91	297	33·05
1938	9,410	15·88	5,539	9·35	287	30·50

Infantile Deaths.—The Government Statist, in Bulletin No. 4 of 1939, has noted that there was, in 1938, a decrease of 10 in the number of deaths of infants under one year of age, the numbers being 287 (297). The figures in parentheses are for the year 1937. The infantile death rate of 30·50 (33·05) is believed to be the lowest for any country in the world, the previous lowest being 30·96 for New Zealand in 1936, in which year South Australia was very close with 31·09. The rate in this State is only about half the rate 20 years ago, and one-third of the rate around 1900. In our report for 1936 a table was produced to show the rates of infantile mortality in each State of the Commonwealth for each year from 1901 to 1936 ; this demonstrates most strikingly the rapid improvement which has occurred.

Of infants under one week the deaths were 155 (171), one week and under one month 44 (42), one to five months 55 (42), six to 11 months 33 (42).

The chief causes of infantile deaths were :—Premature birth, 84 (111) ; congenital malformations, 34 (35) ; injury at birth, 30 (28) ; congenital debility, 18 (16) ; other diseases of infancy, 27 (22) ; diarrhoea and enteritis, 18 (15) ; pneumonia, 37 (25) ; whooping cough, 1 (4).

Recent legislation requires that every case of stillbirth shall be reported to the Registrar of Births. During 1938, 285 stillbirths were reported. The study of causes is valuable. Developmental abnormalities of the foetus and injuries during delivery account for most cases. Medical men, in reporting stillbirths, are asked to state the probable cause as precisely as possible. Reliable statistical information should be useful in assisting better preventive work in this field.

Causes of Death.—The principal causes of death are shown in Table II. The rates shown are those per 10,000 of mean population.

TABLE II.

The Main Causes of Death in South Australia in Recent Years.

Disease.	Persons.			Rates.		
	1936.	1937.	1938.	1936.	1937.	1938.
Diseases of the heart	1,101	1,041	1,199	18·74	17·67	20·24
Cancer and other malignant tumours	740	725	769	12·60	12·31	12·98
Tuberculosis (all forms)	235	256	218	4·00	4·35	3·68
Cerebral Haemorrhage, softening, etc.	527	492	568	8·97	8·35	9·59
Pneumonia, Lobar-, Broncho-, Etc.	343	275	327	5·84	4·67	5·52
Bronchitis (all forms)	74	57	74	1·26	0·97	1·25
Other diseases of respiratory system	125	122	121	2·12	2·07	2·04
Nephritis—Acute and Chronic	252	276	259	4·29	4·69	4·37
Diabetes Mellitus	110	116	140	1·87	1·97	2·36
Puerperal Causes	53	46	44	0·89	0·78	0·74
Congenital, debility, malformations, etc.	216	223	208	3·67	3·79	3·51
Senility	318	285	289	5·41	4·84	4·88
Suicides	69	56	72	1·17	0·95	1·22
Violent deaths (except suicides)	270	318	295	4·59	5·40	4·98
Diarrhoea and enteritis	40	48	37	0·68	0·81	0·62
Whooping cough	9	5	1	0·15	0·08	0·02
Diphtheria and croup	30	27	26	0·51	0·46	0·44
Influenza	17	9	13	0·29	0·15	0·22
Typhoid fever	4	4	6	0·07	0·07	0·10
Appendicitis	35	52	39	0·60	0·88	0·66
Hernia, intestinal obstruction	52	61	47	0·89	1·03	0·79
Cirrhosis of liver	15	22	22	0·25	0·37	0·37
Tetanus	11	7	2	0·19	0·12	0·03
All other	818	724	763	13·95	12·29	12·88
Totals	5,464	5,247	5,539	93·00	89·07	93·49

A return has also been supplied by the Government Statist to illustrate the incidence of deaths from tuberculosis, cancer, and diseases of the heart. Mr. Bowden states that, except for irregular movements since 1930, the rate per 10,000 of mean population for tuberculosis has been showing a heavy continuous fall, the rate for 1938 being less than half of the rate 20 years ago. Cancer had been showing a fairly continuous rise, but during the last few years the rate has been fluctuating, that for 1938 showing an increase on 1937. The increase in latter years in the death-rates from cancer and from heart disease is not so serious as it would appear from the crude death rate, for most of such deaths are of older persons, and these now constitute a much larger proportion of the population. Table III. shows the figures.

TABLE III.

Deaths from Tuberculosis (all forms), Cancer and Heart Diseases.

Period.	Tuberculosis.		Cancer.		Heart.	
	No.	Rate.	No.	Rate.	No.	Rate.
Mean—						
1920-24	382	7·55	476	9·41	541	10·69
1925-29	364	6·49	555	9·90	590	10·53
1930-34	297	5·14	653	11·29	806	13·94
Year—						
1934	281	4·82	651	11·16	956	16·38
1935	260	4·44	610	10·43	1,029	17·59
1936	235	4·00	740	12·60	1,101	18·74
1937	256	4·35	725	12·31	1,041	17·67
1938	218	3·68	769	12·98	1,199	20·24

Deaths by Violence.—The automobile still constitutes a serious menace. The Government Statist's figures for the past five years are shown in Table IV.

TABLE IV.

Deaths by Violence in South Australia.

	1934.	1935.	1936.	1937.	1938.
Suicide	78	59	69	56	72
Homicide	10	4	8	8	5
Accidental burns	13	9	14	18	15
Accidental mechanical suffocation	5	3	1	4	3
Accidental drowning	29	32	35	40	22
Accidental fall	54	47	50	62	80
Automobile accidents	74	69	76	105	99
Other causes	109	78	81	81	71
Total deaths by violence	372	301	334	374	367

PART III.

SANITATION.

Local Boards.—Although people generally are far more hygiene-minded than was the case years ago, it is the experience of health departments in every country that some system of regular inspection and frequent exhortation is essential if healthful conditions of living are to be maintained. In this State, the officers of Local Boards attend to this work in their areas, while the Central Board exercises general supervision over the whole State. Sanitation, the first chapter in the story of public health, still remains the basis of all good health work. It is the privilege and duty of Local Boards to guide the people in their areas along the right lines.

Sewage Disposal.—In the metropolitan area the provision of modern sewage treatment plants at Glenelg and Port Adelaide has provided the ideal means for disposal of a fair proportion of sewage from the metropolitan area. The Sewage Farm at Islington still deals with a large part of the sewage. The farm method of disposal does not conform to the modern idea of what is best; and the Board understands that the policy of the Government is to construct a modern treatment plant to replace the obsolete method. This will enable practically all the sewage from the metropolitan area to be dealt with in a safe and inoffensive manner.

In country areas the disposal of sewage is a matter for continued care. Where an adequate water supply is available, and where sufficient land is available for disposal of effluent, the septic tank provides the best disposal method. Throughout the State over 18,000 of these tanks have been installed, and generally the experience of their working has been eminently satisfactory. In some localities the disposal of effluent from tanks may present a little difficulty, but this can usually be overcome. Trouble also arises at times from the overtaxing of the tanks, owing to the installation of a tank too small to deal with the amount of sewage regularly passed into it. It is wise that, where a new tank is being installed, the question of size should be seriously considered, and a tank sufficiently large to deal with the maximum daily load should be decided on.

In the more closely populated portions of the country towns the double pan system, properly carried out, is satisfactory. The pans must be collected regularly, at least once a week, and the material carefully buried in shallow trenches, at a properly supervised depot. In some areas the pit system is still in use. Here extreme care is necessary to ensure the keeping out of flies from the privies and the proper covering of the material with earth. The use of suitable deodorants is also to be commended. Carelessness in the disposal of human excreta is a serious menace, and helps to spread gastro-intestinal infections. The amount of typhoid fever and other bowel infections occurring in a community is usually a reliable index of the hygienic status of the area.

" Shacks " and " Humpies."—The Central Board continues to impress on Local Boards the need for supervision of holiday " shacks ". The common tendency is for flimsy shelters to be built, and for no satisfactory sanitary arrangements to be provided. Unless adequate care is given to the proper sanitation of these holiday places, the people, instead of deriving benefit from their stay in them, will run grave risks of developing serious ill-health. The Board continues to urge local authorities in whose areas these holiday premises are built to ensure the proper provision of sanitary requirements.

In the recent years of financial depression, many people, unable to afford proper living premises, were driven to construct mean shelters or " humpies ". Many of these huts were unlikely to cause harm if occupied only for a short period, but the dangers of bad sanitation were ever-present. The Central Board urges all Local Boards to give serious attention to the living premises in their areas, and—where practicable—to order the demolition of all premises unfit for habitation.

Camping Grounds.—Camping in tents and caravans at the beaches and in the hills is becoming more and more popular. Here again such holidays will only be healthy ones if proper sanitary requirements are observed. Carelessness may lead to danger. At Victor Harbour and adjacent seaside resorts on the south coast, the camping grounds set up by local councils were fully patronized during the recent Christmas season. A special inspection of some of the camps was made by an officer of the Central Board, and his report showed a satisfactory state of affairs. At the camps inspected supervising attendants were on duty all the time, and the sanitary arrangements were suitable. The secret of healthy, happy camping in large groups depends on good preparation of the site, proper sanitary adjuncts, and constant supervision. It is the duty of Local Boards to see that these requirements are observed in their areas. Not only may carelessness risk the health of the campers, but it may also endanger that of the permanent residents, in the district.

PART IV.

FOOD AND DRUGS.

The Advisory Committee under the Food and Drugs Act, 1908.—Dr. E. Angas Johnson, who has been a member of the Advisory Committee under the Food and Drugs Act since 2nd June, 1910, retired from the Committee when he resigned from the position of Officer of Health to the Local Board of Health, Adelaide. Dr. H. Kenneth Fry, the newly-appointed Officer of Health, was appointed to the Committee in June, 1938. The Committee now consists of Dr. A. R. Southwood, Chairman (Chairman of the Central Board of Health), Professor A. Killen Macbeth (Professor of Chemistry of the University of Adelaide), Mr. C. E. Chapman (Government Analyst), Dr. H. Kenneth Fry (Officer of Health for Adelaide), and Messrs. W. M. Fowler, E. F. Lipsham, and F. M. Standish (persons conversant with trade requirements).

The Committee met on four occasions during the year. The subjects dealt with were Preservatives in junket tablets, egg-pulping, chilled eggs and preserved eggs, milk bars, bread delivery vehicles, A.P.C. powders and tablets, chocolate for diabetic persons, inspections of rabbits, processed cheese, cornflour, use of acid phosphate in baking powder, preservatives in butter, and imitation vinegar. The Committee also dealt with the revision of the Poisons Regulations, and considered the amendment of regulations relating to milk.

Water Supply.—The Advisory Committee on Water Supplies Examination continues to devote its attention to the public health aspects of water supply throughout the State. In 1938 the Committee consisted of Mr. H. T. M. Angwin, Chairman (Engineer-in-Chief), Mr. C. G. F. Johnson (Engineer for Water Supply), Professors J. B. Cleland (Pathologist), A. E. Platt (Bacteriologist), T. Harvey Johnston (Zoologist) Drs. A. R. Southwood, E. Angas Johnson, and H. K. Fry, and Mr. R. G. Wilton, Secretary.

Milk Vendors.—The Central Board continued to provide for the licensing of vendors of milk and the registration of their premises in the majority of the Local Board districts outside the metropolitan area. The number licensed for the year ended 30th June, 1938, was 367. In the metropolitan area, the Metropolitan County Board exercises control, licensing 1,427 vendors. Thirty-seven Local Boards effecting licensing in their districts licensed 310 vendors.

Testing of Spirits.—The special inspector, the nature of whose appointment was described in our 1937 report, continues his duties. During the year, the inspector examined 6,323 spirits at various hotels throughout the State and submitted 18 samples for analyses. Legal proceedings were taken in respect of 15 samples.

The Poison Regulations, 1938.—The necessity for revising the regulations relating to the Sale of Poisons, with the view to bringing them up to date, has long been apparent. The Advisory Committee, under the Food and Drugs Act, appointed a sub-committee, consisting of Professor A. Killen Macbeth (Professor of Chemistry of the University of Adelaide), Mr. C. E. Chapman (Government Analyst), and Mr. E. P. Lipsham (Pharmaceutical Chemist) to consider the matter of such revision.

Consistent with the interests of the public health every endeavour was made by the sub-committee to meet the wishes of primary producers, business people, and the several other bodies concerned. The legislation is largely based on the Poisons Rules of Great Britain, such rules having already been adopted in New Zealand and South Africa. The special conditions existing in South Australia, however, were constantly borne in mind in framing the regulations, and important modifications were introduced to meet the case, especially as regards poisons used in the primary industries. The sub-committee has done a work of outstanding value. The Advisory Committee adopted the proposed regulations, and they were published in the *Government Gazette* on the 19th May, 1938. They came into force on 1st July, 1938. The preliminary administrative difficulties, consequent on such a wide revision of legislation, are gradually being surmounted by the Board's officers, and the whole arrangements are working smoothly.

With the regulations under the Dangerous Drugs Act of last year and the new Poisons Regulations, legislation on these matters in this State now falls into line with that of most parts of the Empire. The control of the sale of the more powerful sedative and hypnotic drugs is now provided for. This is an important and much-needed feature, for the indiscriminate taking of potent drugs of this character is a potential source of grave harm. The third schedule of the new regulations comprises a list of poisons which can be sold retail on prescription only. These include amidopyrine, barbituric acid and its derivatives, paraldehyde, and sulphonal. Sulphanilamide, ergot, and thyroid gland are also on the " prescription only " list.

PART V.

THE PREVENTION AND CONTROL OF INFECTIOUS DISEASES.

The Infectious Diseases and Tuberculosis Regulations, 1938.—The Health, Act, 1898, laid down general directions for dealing with persons suffering from infectious diseases or from pulmonary tuberculosis. The legislation was of a " remedial " nature. Now the whole trend of public health in recent years has been along the lines of prevention: " The railing at the top of the cliff is better than the ambulance at the foot."

In 1932 an amending Health Act was passed providing the means for adopting modern methods of control. The new Act gave power to make regulations of a " preventive " nature, in regard to the control of infectious diseases and tuberculosis. It also gave power to deal with " contacts " and " carriers," over whom there has been no effective control. Such control will materially assist health authorities in their efforts to prevent the spread of infectious illnesses.

Shortly after the passing of the amending Act of 1932, the Chairman submitted draft regulations for the Central Board's consideration. These regulations accorded with similar provisions in several other States and countries, and were based mainly on the regulations in force in Victoria. The draft was also submitted to the President of the British Medical Association, to several officers of health for Local Boards, to the Chief Medical Officer for Tuberculosis Services, to the Lecturer in Public Health and Preventive Medicine at the University, and to the Principal Medical Officer of the Education Department. All these gentlemen expressed themselves in agreement with the proposals. The members of the Central Board were also unanimous that the regulations were desirable and that they would assist in making more effective the work of Local Boards against infectious diseases and tuberculosis. The Board considered that, owing to the financial depression the time was then inopportune for the introduction of the regulations.

In 1934, during a study tour of the British Isles, some of the European countries, Canada and the United States of America, the Chairman made inquiries on infectious disease control in those countries, and found the methods in force to be on the same lines as laid down in the draft regulations.

The draft regulations have since received the very careful consideration of the Central Board of Health and the views of a number of medical men qualified to advise on these matters were incorporated in the new rules. The Board recommended His Excellency the Governor to make the regulations on 25th October, 1938.

The regulations embody the main provisions considered essential by modern medical authorities for the adequate supervision of persons suffering from infectious diseases, and for the limitation of the spread of these diseases. The procedures laid down have been thoroughly tried out and found satisfactory, not only in this State, but in most other countries. Indeed, there are now very few countries where similar regulations are not already in force. In South Australia many Local Boards of Health already exercise supervision in this way, although no definite regulations have previously existed here. However, Local Boards have, from time to time, complained that their efficiency in their work has been hindered through the lack of precise regulations, especially in dealing with " contacts " and " carriers." Moreover, although many Local Boards have already adopted the modern procedure, there has long been felt the need for uniform action on the part of all Local Boards in matters of such great importance to community welfare.

The details set out in the regulations explain the action to be taken by Local Boards and their officers on the outbreak of an infectious disease in their areas. The desirability of having a clearly defined plan ready in advance is obvious. Those Local Board medical officers who, by request, perused the draft regulations enthusiastically indorsed their value in assisting Local Boards.

The preliminary portion of the regulations consists mainly of definitions. The term " medical surveillance " is a useful one, in that it provides for a form of supervision by health authorities to a degree less severe than complete isolation. This type of supervision was found extremely valuable in this and other States during the recent epidemic of infantile paralysis.

Part II. of the regulations embodies the general provisions applicable both to infectious diseases and tuberculosis. The supervision of "carriers" and "contacts" outlined in Regulation 13 is an extremely useful addition. The provision for the proper disinfection of ambulances and other vehicles used in the transport of sufferers from infectious diseases is also very necessary.

The detailed regulations dealing with special infectious diseases shown in Part III. of the regulations are designed to assist the officers of Local Boards in their work. Previously the lack of regulations of this type has been seriously felt.

Part IV. of the regulations dealing with tuberculosis clearly defines the action to be taken by Local Boards in dealing with sufferers and persons in their households. The regulations dealing with the control of patients who are unable or unwilling to take proper precautions have been the subject of careful thought, and are considered adequate for their designed purpose.

The general indorsement of the regulations by those authorities who have perused them is their strong recommendation. With their aid the work of health authorities in this department of preventive medicine will be much more effective than it has been in the past.

The Incidence of Infectious Diseases.—Table V. shows the incidence of cases and number of deaths from infectious diseases throughout the State during the past three years.

TABLE V.

Infectious Diseases Return for the Years 1936-1938.

Infectious Diseases.	Cases Reported.			Deaths.		
	1936.	1937.	1938.	1936.	1937.	1938.
Anthrax	—	—	1	—	—	—
Cerebro-Spinal Meningitis	2	2	—	1	—	—
*Chickenpox	1,423	1,223	—	—	—	—
Diphtheria	1,279	774	772	30	27	26
Dysentery—Amoebic	4	4	4	3	1	2
Dysentery—Bacillary	5	19	3	3	2	—
Encephalitis Lethargica	2	4	—	3	5	1
Endemic Typhus Fever	13	6	7	3	—	—
Erysipelas	121	110	78	6	3	3
Favus	—	—	—	—	—	—
Influenza	135	143	42	14	10	17
Malaria	—	—	—	—	—	—
Measles	88	72	85	—	—	—
*Mumps	198	107	—	—	—	—
Paratyphoid Fever	1	—	1	—	—	—
Poliomyelitis Anterior Acuta	5	85	284	—	2	20
Puerperal Fever	89	58	50	9	6	1
Pulmonary Tuberculosis	266	331	300	199	225	193
Scarlet Fever	397	214	510	1	2	2
Typhoid Fever	51	27	33	3	4	6
Whooping Cough	751	684	184	9	5	1

* Not notifiable, 25th November, 1937.

Diphtheria.—Diphtheria continues to kill in this State one child every fortnight. In view of the high value of artificial immunization in enabling children to resist infection from diphtheria, it is a sad reflection that the disease is still allowed to persist in our midst.

Many Local Boards have conducted immunization campaigns under the scheme formulated by the Central Board five years ago. Supplies of the immunizing agent—anatoxin—are issued to Local Boards and to approved institutions. During 1938, approximately 1,000 children were immunized under the scheme. Throughout the world, diphtheria immunization has now become a routine activity of health departments. Probably the ideal plan at present is to immunize children with three injections of anatoxin in the first year of life, and to give one further injection at the age of five years. In this State attention has been mainly directed to children just beginning school, but gradually more of the younger children are being protected.

To be effective as a public health measure, immunization should be available in the various areas at least in alternate years. Some orderly plan of this nature must be adopted so that the fresh groups of children may be treated early in life. During the past three years about 21,000 children in South Australia have been immunized under official schemes, but the work must be carried on far more extensively if the community as a whole is to gain full value from it. The small amount of immunizing done in this State so far has been sufficient to confer benefit on the individuals treated, but has not been nearly enough to appreciably affect statistical tables of morbidity and mortality. During the past five years (1934-1938) there have been, in South Australia, 3,933 cases of diphtheria and 115 of the sufferers have died.

Poliomyelitis.—In view of the extent of the recent epidemic this subject is dealt with fully in Part VI. of this report.

Typhoid Fever.—The incidence of typhoid fever in this State is still far higher than it should be. In the section of this report dealing with sanitation reference has been made to the importance of proper disposal of sewage as a factor in limiting typhoid fever. In every community there are a few persons who from time to time pass typhoid bacilli in their excreta. If it happens that flies have access to such germ-containing excreta, then the risk of further contamination is great.

It is probable that from 2 per cent. to 5 per cent. of all typhoid patients become permanent carriers. In countries where the disease is at all common, there may be one or more carriers in every thousand of the population. Such people are a constant source of danger to the community, especially if they are engaged in handling milk or other foodstuffs.

Most convalescent typhoid patients who continue to pass the germs for as long as six months after the acute illness are likely to become permanent carriers. The successful treatment for the chronic carrier has hitherto been surgical, but it is possible that the newly-developed sulphanilamide group of drugs may help in clearing some of the cases.

In this State chronic carriers have occasionally been identified. Mention was made in *Public Health Notes* of July last, of the outbreak in a country boarding-house, where the origin of the infection was traced to a kitchenhand who had the illness over 20 years before. A more recent example occurred in an Adelaide suburb. The patient was a man of 43 years, and in his household lived his mother-in-law, 78 years of age. The old lady had typhoid fever in her girlhood days, at the age of 17. On investigation her blood gave a positive Widal reaction, and the faeces showed typhoid bacilli.

Undulant Fever.—In the *Government Gazette* of 8th September, 1938, undulant fever was proclaimed an " infectious disease " within the meaning of The Health Act, 1935. The disease is due to a germ, the Brucella abortus, and it may be acquired by people who drink raw milk from infected cows, or who handle infected animals. Diagnosis of the disease in the human subject may be confirmed by blood culture or by the agglutination test. A special article on Contagious Abortion in Cattle was contributed to *Public Health Notes* for October, 1933, by Mr. C. A. Loxton, B.V.Sc., Chief Inspector of Stock.

There is no reason for thinking that undulant fever is at all common in human subjects in this State. Diagnosis of the disease may be confirmed in the laboratory by agglutination methods. Now that the disease has been made notifiable it will be possible to gain a better idea of its frequency.

PART VI.

POLIOMYELITIS.

Extent of the Epidemic.—The epidemic of poliomyelitis in Victoria began in a suburb of Melbourne in June, 1937. In South Australia no cases occurred till September, when two mild cases were reported from Ceduna ; the first was a sporadic case ; the second was that of a child recently arrived from Melbourne. These gave rise to no further recognised cases.

Early in November, 1937, a child at St. Peters was reported as a sufferer. Inquiry showed that an infant in the same household had arrived from England, *via* Colombo and Fremantle, a few days prior to the child's illness, and that the infant itself had recently developed partial paralysis of a limb. The infant was apparently in an infectious stage of its illness on disembarkation. Both children were isolated.

Later in November one case was reported in Devon Park, and one in the city. During the next three weeks several further cases occurred in the neighbourhood of the residence of the latter patient.

In December the epidemic was definitely " on." Four cases (as above) were reported during November. The number of cases reported to the Central Board of Health each week during December and January was :—0, 6, 20, 24, 28, 26, 25, 25, 16. The illness closely conformed to the types seen in the Melbourne epidemic. Although it was not possible definitely to trace the origin of infection, it is probable that it was imported from Melbourne. This difficulty in tracing definitely the case-to-case infection is one of the peculiar features of poliomyelitis, and is explained by the fact that for every case of actual paralysis a large number (estimated at up to 500 even !) of unrecognised or " invisible " cases—patients not really ill, but capable of spreading infection—provide the links between actual cases.

Statistical Summary.—From 1st November, 1937, to 30th June, 1938, there were notified in this State 341 cases of infantile paralysis. There were 21 deaths. Of the 341 cases 232 occurred in the metropolitan area (total population 318,190), and 109 occurred in country districts (total population 272,810). Two hundred and eighty-three of the patients were treated at the Metropolitan Infectious Diseases Hospital, Northfield. The epidemic almost completely subsided by the end of May. The weekly reports are as under :—

	Metropolitan.	Country.	Total.
No. of Cases for Week Ending—			
20th November, 1937	2	—	2
27th November, 1937	2	—	2
4th December, 1937	—	—	—
11th December, 1937	6	—	6
18th December, 1937	20	—	20
25th December, 1937	23	1	24
31st December, 1937	27	1	28
8th January, 1938	25	1	26
15th January, 1938	21	4	25
22nd January, 1938	21	4	25
29th January, 1938	14	2	16
5th February, 1938	14	7	21
12th February, 1938	8	14	22
19th February, 1938	8	10	18
26th February, 1938	7	11	18
5th March, 1938	6	5	11
12th March, 1938	5	3	8
19th March, 1938	6	7	13
26th March, 1938	1	6	7
2nd April, 1938	6	2	8
9th April, 1938	1	6	7
16th April, 1938	3	1	4
23rd April, 1938	4	6	10
30th April, 1938	2	1	3
7th May, 1938	1	5	6
14th May, 1938	—	5	5
21st May, 1938	—	2	2
28th May, 1938	1	—	1
4th June, 1938	—	—	—
11th June, 1938	—	—	—
18th June, 1938	—	—	—
25th June, 1938	—	3	3
2nd July, 1938	—	—	—

In quinquennial age-groups the incidence was as under :—

Age-group in Years.	Cases.	Age-group in Years.	Cases.
0 to 4	79	30 to 34	4
5 to 9	103	35 to 39	5
10 to 14	69	40 to 44	4
15 to 19	45	45 to 49	2
20 to 24	18	50 to 54	3
25 to 29	8	55 to 59	1

Advisory Committee on Infantile Paralysis.—The Special Committee appointed by the Minister of Health in September, 1937, consisted of Dr. A. R. Southwood (Chairman), Sir Henry Newland, Drs. F. S. Hone, E. Weston Hurst, L. W. Jeffries, and H. H. E. Russell.

The Committee held weekly meetings during the active phase of the epidemic, and successfully co-ordinated the work of various authorities and organizations.

The Committee gave much thought to the arrangements that might be necessary in dealing with country cases. Acting on its advice, the Central Board sought and received the approval of the Minister of Health that far-distant country patients showing respiratory difficulty should be brought by ambulance aeroplane to the Infectious Diseases Hospital at Northfield for special treatment, the cost to be borne by the Government if the financial circumstances of the patient were insufficient to provide for such. Details of this arrangement were explained in a special circular issued to Local Boards in country areas.

Circulars and Public Announcements.—In the course of any epidemic a certain amount of public anxiety is inevitable. Suitable announcements by health authorities in the newspapers and over the air do much to allay unnecessary alarm, and to secure general co-operation in measures of protection.

In most communities it has been observed that epidemics of infantile paralysis are especially liable to be panic-promoting. The policy of the Central Board was to make adequate preparation to meet the outbreak, to inform Local Boards by circulars from time to time on various aspects of the matter, and by the issue of statements suitable for press publication keep the general public acquainted with the developments.

The quarterly bulletin of the department, *Public Health Notes,* was a valuable medium for disseminating information. In the October, 1937, issue, the following articles appeared :—" Imperturbability ", " What is Infantile Paralysis ? ", " Infantile Paralysis in Melbourne ", " Circular on Infantile Paralysis ", In the issue of January, 1938, these articles were published :—" Meeting a Blow ", " Conference on Infantile Paralysis ", " Panic, Publicity, and Paralysis ", " Respirator Treatment in Poliomyelitis ", " Early Signs of Infantile Paralysis ", " Attempts to Prevent Poliomyeltis ". The Central Board distributed the following circulars to Local Boards :—

(1) " General Features of Infantile Paralysis " : 15th September, 1937. This contained the regulations relating to sufferers and contacts and the reports of the Central Board of 31st August and 14th September.

(2) " Symptoms of Infantile Paralysis " : 22nd December, 1937. This outline was based on Melbourne cases and was issued for the information of officers of health.

(3) " Infantile Paralysis : Arrangements in Country Areas " : 8th January, 1938. Explaining the plan for transferring respirator patients by ambulance aeroplane.

(4) " Infantile Paralysis : Action to be Taken by Local Boards " : 20th January, 1938. Stressing the need for the voluntary co-operation of parents in restricting the movements of children.

These circulars were designed to assist Local Boards, especially those in country areas. In many towns there is normally only a small isolation block available. It was therefore necessary to arrange for temporary hospital accommodation in the event of any widespread epidemic. Many Local Boards adopted the advice of the Central Board and made suitable plans well in advance.

A leaflet was prepared by the Central Board of Health outlining the main early symptoms and the requirements for isolation of sufferers and contacts. Supplies of the leaflet were sent to Local Boards for official guidance and general distribution.

The Central Board greatly appreciates the help of the proprietors of *The Advertiser* and *The News* in publishing official statements issued by the Advisory Committee on infantile paralysis. To the careful supervision exercised by the editorial staffs of these papers must be attributed the comparative absence of unnecessary alarm in the community.

Waning of the Epidemic.—The epidemic, which began in November, 1937, was rapidly abating in April, 1938. It has been the largest poliomyelitis outbreak recorded in this State. The acute phase of the trouble being passed, the problem remaining was to handle efficiently its hateful legacy, the scores of cripples. Fortunately much of the crippling is curable, and every effort was directed to minimising the ultimate damage.

Where private arrangements for after-treatment could not be made there were available the services of the Adelaide Hospital and the Children's Hospital, as well as the aid of the South Australian Committee for Crippled Children. The Central Board of Health greatly appreciates the work of these bodies.

Local Boards of Health and their officers had a busy time in supervising patients, their homes, and contacts. The work of the staff of the Metropolitan Infectious Diseases Hospital has been outstandingly meritorious. The local manufacture of mechanical respirators proved of inestimable value ; the firm responsible is to be highly commended for the painstaking and successful efforts to cope with the urgent need of the early weeks.

The Advisory Committee on Infantile Paralysis has successfully co-ordinated the various activities involved in dealing with the outbreak, and the Central Board is grateful to the medical men giving honorary service as Committee members.

PART VII.

THE PREVENTION AND CONTROL OF TUBERCULOSIS.

Progress against Tuberculosis.—Rosenau, the American authority on preventive medicine, describes tuberculosis as the most damaging and widespread of all the major infections. " Since the beginnings of written history tuberculosis has taken a greater toll of human life than any other disease. The toll falls heaviest during the period of greatest usefulness ; thus, 30 per cent. of all deaths between the ages of 15 and 60 are due to pulmonary tuberculosis ".

Yet, although tuberculosis still constitutes the main health problem of communities living in temperate climates, there are signs of a brighter outlook. Throughout the world the ravages of the disease are steadily diminishing. Rosenau says :—" Tuberculosis is fast becoming, in fact already is, a class disease ; it is more prevalent among the poor than among the well-to-do. The prevention of tuberculosis has become a sociological problem. Poverty, with its attendant hardships—poor food, bad housing, crowding, overwork and worry—diminishes resistance to the disease ; while prosperity, which buys good food, rest, change of air and scene, choice of occupation, and diversion, decreases the chances of infection and increases our resistance and avoids contact with the infection. An increase of wage or decrease in the cost of living ; improvement in food and diet ; shortening the hours of work ; improving the conditions of industrial hygiene ; better housing ; adding to the number of holidays ; playgrounds, parks, and wholesome recreation, all help to increase our resistance against and diminish the prevalence of tuberculosis. Science has shown the way ; it remains for society to apply the knowledge. Social justice is part of the programme of preventive medicines."

The steady fall in the death-rate in all the Australian States is very striking. The death-rate from pulmonary tuberculosis per 100,000 population in the various States in recent years has been about 40. The rate (five-year average) has been least in Queensland (31·7). New South Wales gave the rate of 36·2, South Australia 39·5, Victoria 40·5, Tasmania, 44·1, and Western Australia 44·9. It is noteworthy that in South Australia and Victoria the death-rate for the five-year period 1933-1937 is less than one-half that of the period 1908-1912 ; the rate of improvement in these two States in the past 25 years has been greater than in the other States.

In all countries pulmonary tuberculosis strikes heaviest on the young adults, and especially on young women, and in this group active and continued efforts are needed to lessen the blow. In South Australia, in the period 1933-1937 (inclusive), the deaths of 647 males and 523 females were reported due to pulmonary tuberculosis. For each sex over 80 per cent. of the deaths occurred between the ages of 15 and 60 years ; 528 males and 467 females. But it is especially noteworthy that three-quarters of all female deaths (388 of the 523) occurred between the ages of 15 and 40 years, and that nearly two-thirds of the male deaths (406 of the 647) occurred between the ages of 30 and 60.

Incidence.—During the year 1938 there were 300 cases of pulmonary tuberculosis reported and 191 deaths. The number of deaths recorded continued to fall appreciably. Table VI. shows cases and deaths in this State since 1901.

TABLE VI.

Years.	Cases Reported.	Deaths.
Average for the period, 1901-1905	341	300
Average for the period, 1906-1910	427	331
Average for the period, 1911-1915	476	317
Average for the period, 1916-1920	534	344
Average for the period, 1921-1925	513	332
Average for the period, 1926-1930	461	306
Average for the period, 1931-1935	363	252
1936	266	199
1937	331	225
1938	300	191

Tuberculosis Research.—It has been observed that the mortality from tuberculosis in the female age-group of 15-30 years is somewhat greater in South Australia than in the other States of the Commonwealth.

In all communities this special susceptibility of young women to tuberculosis is a noteworthy feature, but conclusive reasons for this are not obvious. Nor is it apparent what special factors exist to account for the greater burden in this State. Realizing that the matter of the high incidence of tuberculosis in this special group warranted further research, the National Health and Medical Research Council decided that a survey of the chest conditions of young women in the metropolitan area of Adelaide would be likely to clarify some features of the problem, especially if the results of the survey were compared with parallel investigations in other Australian States. The metropolitan areas are best studied, for it is the usual experience that country areas escape the heavy tuberculosis toll.

It is necessary to determine from what sections of the community the young women who die from tuberculosis mainly come, and also to investigate any special contributory causes leading to the development of tuberculosis in these women. A special statistical inquiry of the matter in the various States is also being made. The Research Council has suggested that detailed information concerning the young female patients should be collected and should include facts relating to age and occupation of patient, date of onset of illness, possible source of infection (household or occupational), nutrition, environment, marriage, and child bearing.

Financed by a grant from the National Health and Medical Research Council, investigations into the incidence of tuberculosis in young women in South Australia are now proceeding. As the incidence is particularly high in nurses, milliners, dressmakers and shop assistants, special attention is being devoted to those groups.

The Unceasing Battle.—Tuberculosis is a disease always with us. Year by year in this State about 200 persons die from it. Although the statistics show gradual improvement, yet there still remains much to be done before the situation can be viewed with satisfaction.

As a community we must not let ourselves be resigned to this fate. In its early stages tuberculosis is usually curable, and, properly attacked, the disease is eminently preventable. We must not be complacent about so grave a matter.

Early and thorough treatment of sufferers is essential to success. If all patients in the early stages of the disease were placed under proper care the mortality would be greatly reduced. In many cases a short stay in a hospital or sanatorium is necessary at first; later, when the patient is up and able to walk about, treatment must be continued at home. The home supervision by trained nurse-inspectors on the staffs of Local Boards is one factor of the greatest value.

When one person in a household is stricken with the disease, the others should be examined, and, if evidence of early trouble are recognized, prompt treatment should be instituted. In recent years the use of X-rays for the investigation of lung diseases has been a tremendous help. With modern methods of investigation and treatment tuberculosis need be no longer the dread danger of former days. Science has done its work. The facilities for control of the disease and relief from its ravages are available. It now remains for individual sufferers and for the community generally to apply the knowledge. In prevention and in early treatment lie the hope of progress, and by continued effort the battle can be won.

PART VIII.

CONCLUDING OBSERVATIONS.

1. The report shows that the state of public health of South Australia, compared with that of other countries and of other States of the Commonwealth, is reasonably good. Considering our excellent climatic and living conditions, and the opportunities our people have for general education and for training in sound hygiene, we as yet cannot be completely satisfied. We must strive to be an example to the rest of the world.

2. The record low rate of infantile mortality in this State for 1938 is most gratifying.

3. The State's record epidemic of poliomyelitis gave considerable anxiety. The use of mechanical respirators in the treatment of patients suffering from paralysis of the muscles of breathing, and the use of the ambulance aeroplane for conveying seriously affected patients from the country centres to the city, were two noteworthy features.

4. The incidence of other infectious diseases maintains a steady level, and, in some respects, improvement should be attainable. The more extended use of artificial immunization against diphtheria should prove of great value. Typhoid fever cases are more frequent than they should be, and means for reducing this frequency are indicated in the body of the report. Measles cases have been infrequent during the last four years, and a big epidemic appears likely during the next year or two. The new regulations regarding infectious diseases and tuberculosis should prove a great advantage to Local Boards.

5. It is encouraging to note the steady improvement in the tuberculosis death rate; it has fallen to one-half its level of 20 years ago. The supervision of patients' homes, and the examination of contacts are matters to be diligently attended to.

6. The operation of the Poison Regulations is proceeding satisfactorily. The legislation regarding dangerous drugs and poisons now in force in this State conforms to modern requirements.

7. The great importance of keeping a healthy environment must still be stressed. Sanitation is the basis of good public health work, and Local Boards should give heed to the references made to the subject in this report. Clean tidy towns and homes are pleasant to look at, and healthy to live in.

8. What further advances are made in the state of the public health rest mainly with Local Boards. On them devolves the responsibility of administering the Health Act in their areas; any indifference to this duty is inexcusable.

9. Public health is the sum of the health of a community's individuals, and responsibility rests on every right-minded person to keep himself fit and his home and town clean. The co-operation of medical practitioners, nurses, dentists and pharmacists is extremely valuable in educating the general community along the right hygienic lines. In the long run the future of public health, as of so many desirable matters, is largely with our schoolteachers. Education should train us how to live, and what is more important than to live healthfully?

A. R. SOUTHWOOD, Chairman.
E. ANGAS JOHNSON,
J. B. CLELAND,
HARRY S. HATWELL,
F. C. LLOYD,
} Members.

S. C. STENNING, Secretary.
Adelaide, 28th March, 1939.